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ABSTRACT

Should a stimulus be defined as the single event immediately preceding a response (simple stimulus) or as a constellation of antecedents representing several preceding events (complex stimulus)? Sixty-eight families with a child between four and eight years of age were observed, and family interactions coded in the naturalistic setting of the home. A behavioral coding system permitted rapid sequential recording of behaviors. Results were significant in two cross validation groups. The findings were: (1) In all cases the immediately preceding stimulus predicted the type of ensuing response better than single stimuli two or three steps removed. (2) Simple and complex stimuli were both predictive of children's deviant responses. (3) Complex stimuli were often better predictors of children's nondeviant behavior than were simple stimuli. (4) Little more than four percent of the possible complex stimulus combinations accounted for more than 80% of the total stimulus behaviors. (Author)

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Predicting Deviancy in Family Interaction

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Brief of a Paper Presented at the Rocky Mountain Psychological Association Convention, Salt Lake City, Utah, May, 1975

Abstract

Should a stimulus be defined as the single event immediately preceding a response (simple stimulus) or as a constellation of antecedents representing several preceding events (complex stimulus)? Sixty-eight families with a child between four and eight years of age were observed and family interactions coded in the naturalistic setting of the home. A behavioral coding system permitted rapid sequential recording of behaviors. Results were significant in two cross validation groups.

a. In all cases the immediately preceding stimulus predicted the type of ensuing response better than single stimuli two or three steps removed.

b. Simple and complex stimuli were both predictive of children's deviant responses.

c. Complex stimuli were often better predictors of children's nondeviant behavior than were simple stimuli.

d. Little more than four percent of the possible complex stimulus combinations accounted for more than 80 percent of the total stimulus behaviors.

Purpose

The purpose of the present social interaction study was to compare the relative utility of a simple stimulus with that of a complex stimulus in predicting the naturally occurring behavior of children. Prior studies of stimulus control have typically limited themselves to studying the function only of the stimulus immediately preceding the relevant response. Yet, it has long been recognized that stimulus constellations or stimuli in sequences may provide greater predictive power than a simple stimulus (e.g., Hull, 1929).

Procedure

A total of 68 families with a child between four and eight years of age were recruited either by advertising or direct invitation. Each family was observed for five days, forty-five minutes per day. A revision of the observational coding system developed by Patterson, Ray, Shaw, and Cobb (1969) was employed. The system was designed for rapid sequential recording of the child's behavior, the responses of family members, the child's response, etc. Spearman-Brown corrected observer agreement coefficients ranged from .91 to .98. The data were sorted into the framework of a sequential process model for stimulus constellations. To improve the probability of finding results which indicated relatively stable proportions, only cells were analyzed which met a minimum frequency requirement. Predictive ability was defined in terms of conditional probabilities (Patterson, 1973). All results were based on cross-subject analyses. The sample was randomly divided into two groups. "t" tests were used to compare differences and only differences which were significant ($p < .05$) in both groups were reported.

Results

Seventy percent of the possible stimulus constellations actually occurred. Only four percent of the constellations met the stability criteria. However, these four percent of the constellations accounted for more than 80% of the recorded behaviors. In all cases the immediately preceding simple stimulus better predicted the type of ensuing response than simple stimuli two or three steps removed from the response. Simple and complex stimuli were both predictive of children's deviant behavior. Complex stimuli were often better predictors of children's non-deviant behavior than were simple stimuli.

Conclusions and Implications

Children's deviant behavior may be cued or "set off" by a simple, single stimulus. On the other hand non-deviant behavior in children often seems to be cued or "set off" by a much more complex chain of events. Programs to modify children's behavior by increasing the frequency of non-deviant behavior may be improved by establishing chains of (positive) cues rather than just a single cue.

References

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Patterson, G.R., Ray, R.S., Shaw, D.A., & Cobb, J.A. Manual for coding family interactions, sixth revision. Available from ASIS National Auxillary Publication Service, in care of CCM Information Service, Inc., 909 Third Avenue, New York, New York 10022. Document number 01234, 1969.

Table 1

Agents	Behaviors
Target Child	Deviant Nondeviant
Father (F) Mother (M) Older Sibling (OS) Younger Sibling (YS)	Positive (+) Neutral (0) Negative (-)

Stimulus Control
5

Table 2

	10" Interval # 1		10" Interval # 2		10" Interval # 3	
BEHAVIORAL EVENTS:	Mother pats Johney on the head →	Johney smiles →	Father says, "you are a good boy" →	Johney smiles →	Little Sister teases Johney →	Johney hits little Sister
CODED SEQUENCE:	M^{+}_{1} →	$TCND_1$ →	F^{+}_{2} →	$TCND_2$ →	YS-3 →	TCD_3
COMPARISONS: 1a.						
b.					YS^{-}_{3} →	TCD_3
c.	M^{+}_{1} →		F^{+}_{2} →			TCD_3
2.	M^{+} →		F^{+} →		YS^{-} →	TCD

Table 3

Sequences of Three Antecedents for Which the Proportion Deviant Behavior was Significantly Different from the Immediately Preceding Stimulus Alone

Stimulus Sequence (n-3, n-2, n-1)	N	t Score
Father Positive, Father Positive, Father Positive	67	2.418*
Father Neutral, Father Positive, Father Positive	68	-2.232*
Father Positive, Father Neutral, Father Positive	65	-2.048*
Father Positive, Father Positive, Father Neutral	68	-3.328*
Father Neutral, Father Positive, Father Neutral	67	-1.998**
Father Neutral, Father Neutral, Father Neutral	68	5.376***
Mother Positive, Mother Positive, Mother Positive	68	3.040**
Mother Positive, Mother Neutral, Mother Neutral	53	2.040*
[illegible] Mother Negative, Mother Negative	39	3.322**
Father Positive, Older Sibling Positive, Older Sibling Positive	29	3.7[illegible]***
Older Sibling Neutral, Older Sibling Neutral, Older Sibling Neutral	21	3.287**
Father Neutral, Father Neutral, Younger Sibling Positive	41	2.659*
Father Neutral, Younger Sibling Positive, Younger Sibling Positive	40	2.145*

* = $p < .05$
** = $p < .01$
*** = $p < .001$